

**ABSTRACT**

A scanning probe microscope detects or induces changes in a probe-sample interaction. In imaging mode, the probe 54 is brought into a contact distance of the sample 12 and the strength of the interaction measured as the probe 54 and sample surface are scanned relative to each other. Image collection is rapidly performed by carrying out a relative translation of the sample 12 and probe 54 whilst one or other is oscillated at or near its resonant frequency. In a preferred embodiment the interaction is monitored by means of capacitance developed at an interface between a metallic probe and the sample. In lithographic mode, an atomic force microscope is adapted to write information to a sample surface.

*Figure 3*